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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/556,829	04/21/2000	Doris Kuhlmann-Wilsdorf	10582-0002-20	6409
22850	7590	06/29/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			CUEVAS, PEDRO J	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/556,829

**Applicant(s)**

KUHLMANN-WILSDORF, DORIS

**Examiner**

Pedro J. Cuevas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-21 and 25-31 is/are rejected.
- 7) ☒ Claim(s) 14 and 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 18, 2003 has been entered.

### ***Response to Arguments***

2. Applicant's arguments, see pages 2-4, filed on March 18, 2003, with respect to the rejection(s) of claim(s) 1-31 under 35 U.S.C. § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 4,415,635 to Wilsdorf.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10, 12, 13, 17, 19-21 and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,071,795 to Dobbing et al. in view of U.S. Patent No. 3,123,731 to J. Gordon further in view of U.S. Patent No. 4,415,635 to Wilsdorf.

Dobbing et al. clearly teaches the construction of a brush gear for electrical machinery for applying a mechanical force to an electrical brush (13) which consists of a multiplicity of

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resilient conducting fibers (13a), for establishing electrical contact between the brush and the current conducting element and to conduct current between the current conducting element and the brush, comprising:

- a first wall (22) fastened to a current conducting element (16a);
- a second wall (13b) configured to be releasably fastened to the brush;
- a sidewall (21) lengthwise extending in an axis direction of the brush and cooperating with the first and second walls to form a volume defined by the first wall, the second wall and the sidewall; and
- a fluidic medium (23) contained in the volume and configured to apply an approximately constant pressure to the brush.

However, it fails to disclose an electrical brush holder wherein:

- said pressurized gas is pressurized from a source external to the volume;
- an electrical flexible cable composed of ultra-fine metal fibers.

J. Gordon teaches the construction of a master cylinder (34) on a hydraulic actuated brush holder (10) for the purpose of providing a fluid means for maintaining and urging the brushes of a dynamoelectric machine against their commutator with a constant and equal force, and a lead (23) attached to the brush head (14a) for the purpose of connecting the brush head to an outside electrical source.

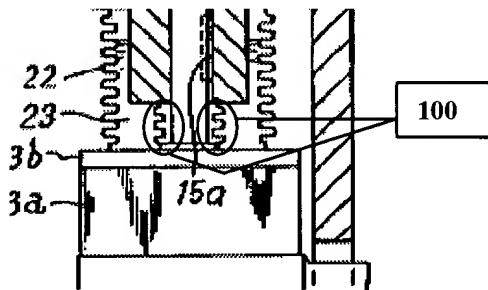
Wilsdorf discloses the construction of an electric brush (10) comprising plural microscopic fiber wires (12) for the purpose of providing a fiber brush superior to conventional monolithic graphite brushes.

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It would have been obvious to one skilled in the art at the time the invention was made to use the master cylinder construction disclosed by J. Gordon and the electrical brush construction disclosed by Wilsdorf on the brush gear disclosed by Dobbing et al. for the purpose of providing a fluid means for maintaining and urging the resilient metal brushes of a dynamoelectric machine against their commutator with a constant and equal force, and connecting the brush head to an outside electrical source with a fiber brush superior to conventional monolithic graphite brushes.

5. With regards to claim 2, Dobbing et al. discloses a brush gear wherein said fluidic medium (23) comprises at least one of a liquid metal and a pressurized gas.

6. With regards to claim 3, Dobbing et al. discloses a brush gear wherein said fluidic medium comprises a gas (100, added by the examiner for convenience) and a liquid metal (23) in pressure-transmitting contact with each other via at least one flexible membrane (21).



7. With regards to claim 5, Dobbing et al. discloses a brush gear wherein said pressurized gas is entirely confined within the volume.

8. With regards to claim 7, J. Gordon discloses an electrical flexible cable (25) composed of a plurality of ultra-fine metal fibers configured to establish electrical contact between the brush and the current conducting element and to conduct current between the current conducting element and the brush.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an electrical cable that comprises a plurality of solid metal filaments, since it was known in the art that a “stranded” cable is in fact a electrical cable that comprises a plurality of solid metal filaments.

9. With regards to claims 8-10 and 29-31, Dobbing et al. in view of J. Gordon further in view of Wilsdorf discloses the claimed invention including an electrical cable that comprises a plurality of solid metal filaments, each having an average diameter of less than 51, 41 and 11  $\mu\text{m}$ .

It would have also been obvious to one having ordinary skill in the art at the time the invention was made to use an electrical cable that comprises a plurality of solid metal filaments, wherein said filaments each have an average diameter of less than 51, 41 and 11  $\mu\text{m}$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

10. With regards to claim 12, Dobbing et al. discloses a brush gear wherein the first wall (22) is fastened to the current conducting element (16a) via a screw (14).

11. With regards to claim 13, Dobbing et al. discloses a brush gear wherein at least part of the sidewall comprises at least one of 1) spiral tubing, 2) telescoping tubing, 3) accordion pleated bellows, and 4) flexible plastic sheet material.

12. With regards to claim 17, J. Gordon discloses an electrical brush holder with rigid tubing (28) surrounding the sidewall and configured to guide the second wall in the axis direction of the brush (14) as shown in Figure 4.

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13. With regards to claim 19, J. Gordon discloses an electrical brush holder wherein the cable comprises electrical connectors configured to connect the cable to an electrical device as shown in Figure 4.

14. With regards to claim 20, Dobbing et al. discloses a brush gear wherein the brush is permanently fastened to the second wall.

15. With regards to claim 21, Dobbing et al. disclose a brush gear wherein the brush is releasably fastened to the second plate via a screw (14).

16. With regards to claim 25, Dobbing et al. discloses the claimed invention except for a third wall fastened to another brush.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a third wall fastened to another brush, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

17. With regards to claim 26, Dobbing et al. discloses a brush gear wherein the pressure applied to the brush is substantially constant.

18. With regards to claim 27, Dobbing et al. discloses a brush gear for applying a mechanical force to an electrical brush (13), comprising:

a chamber defining a volume and having a moveable wall (13b) to which the brush is fastened; and

a fluidic medium (23) contained in the volume and configured to apply a pressure to the brush via the moveable wall.

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19. With regards to claim 28, J. Gordon discloses an electrical brush holder wherein the electrical cable is enclosed within the volume or at least partly located outside the volume as shown in Figure 4.

20. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,071,795 to Dobbing et al. in view of U.S. Patent No. 3,123,731 to J. Gordon further in view of U.S. Patent No. 4,415,635 to Wilsdorf as applied to claims 1-10, 12, 13, 17, 19-21 and 25-31 above, and further in view of JP 02-181313.

Dobbing et al. in view of J. Gordon further in view of Wilsdorf fails to disclose an electrical cable that comprises a volume of liquid metal confined in flexible tubing.

JP 02-181313 teaches the construction of a shielding material comprised of a conductive rubber or a plastic (1) in the external side and a metal powder or a liquid metal (2) packed in the hollow part of the conducting rubber for the purpose of providing a liquid metal cable.

It would have been obvious to one skilled in the art at the time the invention was made to use the liquid metal cable disclosed by JP 02-181313 on the electrical cable disclosed by Dobbing et al. in view of J. Gordon further in view of Wilsdorf for the purpose of using a liquid metal cable.

21. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,071,795 to Dobbing et al. in view of U.S. Patent No. 3,123,731 to J. Gordon further in view of U.S. Patent No. 4,415,635 to Wilsdorf as applied to claims 1-10, 12, 13, 17, 19-21 and 25-31 above, and further in view of U.S. Patent No. 4,277,708 to McNab et al.



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Dobbing et al. in view of J. Gordon further in view of Wilsdorf disclose the construction of an electrical brush holder for applying a mechanical force to an electrical brush (13), comprising:

- a first wall (22) fastened to a current conducting element (16a);
- a second wall (13b) configured to be fastened to the brush;
- a sidewall (21) lengthwise extending in an axis direction of the brush and cooperating with the first and second walls to form a volume defined by the first wall, the second wall and the sidewall; and
- a fluidic medium (23) contained in the volume and configured to apply a pressure to the brush via the second plate.

However, it fails to disclose an electrical brush holder wherein the second wall comprises a wedge-shape in accordance with intended axis direction of the brush, and the first wall is angled relative to the sidewall.

McNab et al. teaches the construction of a brush for a high-current electrical machine wherein the second wall (lower portion of part 41) comprises a wedge-shape in accordance with intended axis direction of the brush, and the first wall (upper left portion of part 41 where the set screw 44 is located) is angled relative to the sidewall for the purpose of setting the brush at about a 45° angle relative to the slip ring surface (45).

It would have been obvious to one skilled in the art at the time the invention was made to use the brush disclosed by McNab et al. on the electrical brush holder disclosed by Dobbing et al. in view of J. Gordon further in view of Wilsdorf for the purpose of setting the brush at about a 45° angle relative to the slip ring surface.

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22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,071,795 to Dobbing et al. in view of U.S. Patent No. 3,123,731 to J. Gordon further in view of U.S. Patent No. 4,415,635 to Wilsdorf as applied to claims 1-10, 12, 13, 17, 19-21 and 25-31 above, and further in view of U.S. Patent No. 4,355,709 to Light.

Dobbing et al. in view of J. Gordon further in view of Wilsdorf fails to disclose a spring disposed between said first and second wall.

Light teaches the use of a spring (44) disposed between said first (42) and second wall for the purpose of applying a mechanical force to the brush (22, 24).

It would have been obvious to one skilled in the art at the time the invention was made to use the spring disclosed by Light on the brush gear disclosed by Dobbing et al. in view of J. Gordon further in view of Wilsdorf for the purpose of applying a mechanical force to the brush.

#### ***Allowable Subject Matter***

23. Claims 14 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach the construction of an electrical brush holder having support rods configured to support at least part of the sidewall, and the fluidic medium is contained in a single or a plurality of flexible membranes, or in a donut-shaped flexible membrane.

#### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (571) 272-2021. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pedro J. Cuevas  
June 24, 2004

PRIMARY EXAMINER  
KARL TAMAI  
